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OCCURRENCE OF *FUNARIA HYGROMETRICA* (L.) SIBTH.

ARAVILLA MEEK TAYLOR

One of the most interesting of mosses from the viewpoint of the ecologist is *Funaria hygrometrica* (L.) Sibth.

It is cosmopolitan, appears in great abundance in various soils, and is a prolific sporophyte producer. It is probably because of its wide distribution and ease of recognition, that we find it given as the type species in many elementary texts of Botany, and in many respects it is admirable for this purpose.

Within the city limits of Chicago we find it as a pioneer crevice-species on rocks and in cracks of the cement walks. In the vicinity of the city it can be found in cracks of stone walls and in crevices of small rock ledges. It is equally at home on cinder piles along railroad embankments and on old ash heaps. It has been found fruiting on areas on which rubbish had been burned during the previous season, and along the gravel walks in Lake Park in the city of Milwaukee.

It comes in on almost pure sand in vacant city lots, as in Chicago, or on hard clay soils as found in Corvallis, Oregon, and can be found in similar abundance on the soils of worn-out farms. As mentioned by Grout¹ it may even occur as a fireweed, and not only that, but as a fire-weed in swamps, as was the case a few years ago in a swamp forest at Thornton, Illinois, where the first new growth, a close covering of *Marchantia* was followed by a luxuriant display of *Funaria* and *Polytrichum commune* L. The former was of unusual size and developed a great quantity of spores. It is not uncommon to find *Funaria* in low depressions filled with water. Unlike most plant species, it thrives with similar ease on the Atlantic coast, in the middle west, and on the coast of the Pacific.

How shall we account for the presence of *Funaria* in such widely different habitats? It cannot be explained by a lack of competition with other plants alone. However true it may be that few plants find in these habitats their most favorable conditions for growth, back of the scarcity of herbaceous plants must be some cause which leads to their absence, but which does not prove a detriment to *Funaria*. Compared with herbaceous species this moss seems to possess a much greater toleration for unusual chemical conditions of soils, since it is able not only to live in acid soils but shows an equal toleration to alkaline conditions. Old worn out farm soils are often easily shown to give an acid reaction, while a basic reaction can be obtained from a test of cinder piles and ash heaps. That the moss should be resistant to *one* is not surprising, but that it can live as well in both acid and alkaline habitats is worthy of consideration. The same thing may be said of its ability to withstand great variation in extremes of moisture.

Added to this tolerance of soil and moisture conditions is the production of great quantities of very light spores which may be carried far afield by the wind. The well-known peculiar twisting of the seta when moistened, must

¹ Grout, A. J. Mosses With a Hand Lens and Microscope.

also aid in dispersal of spores. Another decided advantage which *Funaria* has over many other mosses is that in many regions it is an annual² maturing its spores not only in one season but during the early part of the season. Mature capsules were found in Chicago and Milwaukee in June and in Oregon in May.

All of these characters tend to make *Funaria* a species of wide distribution, and enable it to take entire possession of many barren areas. Its economic value lies in its pioneer character. It holds possession only until, by accumulation of waste and change in chemical content of the soil, other plants are able to exist in places previously wholly unsuited to their needs.

ELLIOTT, IOWA.

BUXBAUMIA INDUSIATA BRID., FROM BRANDON, VERMONT

D. LEWIS DUTTON

In the latter part of January, 1916, I found a capsule of a moss that was a *Buxbaumia* without any doubt, but did not look like anything that I had collected before. Upon looking up the genus *Buxbaumia* in "Mosses with Hand-lens and Microscope" I found that I had a rare moss, *Buxbaumia indusiata* Brid.

No amount of search then brought any more specimens to light, and not until April, 1920, did I find any more capsules. At that date I found five or six good specimens which have since been verified by Dr. Grout.

BRANDON, VERMONT

SOME WAR BRYOLOGY

The two following publications are so unlikely to be generally accessible that brief notice of them as illustrations of the triumph of science over warfare may not be out of place.

I

N. MALTA: BEITRÄGE ZUR MOOSFLORA DES GOUVERNEMENTS PLESKAU, MIT BESONDERER BERÜCKSICHTIGUNG DES KALKSTEINGEBIETES DER WELIKAJAMÜNDUNG. RIGA, 1919.

This is a booklet of 78 pages, dealing both from the systematic and oecological point of view with the bryophyte vegetation of a limited area in Russia in the province of Pskov (Pleskau, Pleskow), just east of the former Baltic Provinces. The author was forced by "circumstances of war" to spend the years 1916 and 1917 in Pskov and made use of this opportunity to study intensively the moss-vegetation especially of the dolomitic limestone area about the mouth of the Velikaya ("Great River") which empties into Lake Pskov. The im-

² Campbell, D. H. Mosses and Ferns, p. 166.